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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,131	08/29/2001	Robert Alan Hoult	03142-P0060A	6577
24126	7590	01/30/2004	EXAMINER	
ST. ONGE STEWARD JOHNSTON & REENS, LLC			SUNG, CHRISTINE	
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STAMFORD, CT 06905-5619			PAPER NUMBER	
			2878	

DATE MAILED: 01/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/942,131

Applicant(s)

HOULT ET AL

Examiner

Christine Sung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. Applicant's election with traverse of the invention elected in Paper No. 10 is acknowledged. The traversal is on the ground(s) that the specifics of group I were included in the group II claims. This is found persuasive because the groups include overlapping inventions and all of the claims submitted have been rejoined.

#### ***Claim Objections***

2. Claims 1 and 40 are objected to because of the following informalities: Claims 1 and 40 are the same exact claims. Appropriate correction is required.

3. Claim 29 recites the limitation "the objective mirror" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

4. Claims 38-39 are objected to because it is unclear as to which claim it is dependent upon. Claim 39 is objected to for being dependent upon an already objected claim.

#### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 25, 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Iddan (US Patent 5,512,749).

Regarding claim 25, Iddan discloses a detector assembly (see figure 2, element 20) for an IR microscope comprising a small array of individual detector elements (figure 2, elements 48),

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the outputs of which can be fed in parallel (Figure 4, elements 106, 108) to a processing means (element 107, 108) in combination with a single detector element (Figure 4).

Regarding claim 26, Iddan further discloses that the detector elements can be located in a Dewar type vessel (column 2, lines 35-40).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-7 and 28-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dukor (US Patent 6,274,871) in view of Iddan (US Patent 5,512,749).

Regarding claims 1 and 40, Dukor discloses an IR microscope (See Figure 3) comprising a sample stage (element 90), optical components (elements 72, 70, beamsplitter in box 52, etc.) for guiding analyzing radiation (element 54) so that it is incident on a sample (element 10) to be analyzed which is carried on said stage (see figure 3), and optical components (elements 74, 76, 78), for guiding radiation from the sample to a detector (element 62)

Wherein the detector (element 62) comprises a small array of individual detector elements (element 92). Dukor does not specify that the outputs of the detector elements are fed in parallel to a processing means. However, Iddan et al. discloses an array of individual detector elements (Figure 2, elements 48), the outputs of the detector elements (see figure 4) being fed in parallel (see figure 4, elements 106, 107, 108) to processing means (107 or 108) for processing the detector element outputs. Parallel processing of detector elements of an FPA is well known in

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the art and is demonstrated by Iddan. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the parallel processor as disclosed by Iddan with the invention disclosed by Dukor as it would have been a matter of design choice.

Regarding claim 2, it is inherent that each detector element has its own detector circuitry as depicted in figure 4 of the Iddan reference.

Regarding claims 3, 4, 5 Iddan discloses that the detector elements are arranged linearly, spaced apart, and in a plurality of rows (see Figures 2 and 4).

Regarding claim 6, Iddan discloses that the detector elements are spaced apart in each row and each row is space apart (see figures 2 and 4, and column 4 lines 60-66).

Regarding claim 7, Iddan discloses that the detector elements are staggered apart relative to those in an adjacent row (see figure 4 and column 4, lines 60-66).

Regarding claim 28, Iddan discloses an assembly (Figure 1, element 18) that can be moved into or out of the beam of radiation in order to change the magnification provided by the optical elements of the microscope (Column 3, lines 44-55).

Regarding claim 29, Iddan further discloses that the magnification assembly is located between the objective mirror (Figure 1, element 44) and its intermediate focus (element 28).

Regarding claim 30, Iddan further discloses that the magnification assembly includes a reflecting element (Figure 1, element 44) that reflects the beam of radiation away from its normal direction and a component that receives the reflected radiation (element 26).

Regarding claim 31, Iddan discloses the claimed invention except for a second magnifying component. It would have been obvious to one having ordinary skill in the art at the

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time the invention was made to have included a second magnifying component, since it has been held that mere duplication of the essential working parts of device involves only routine skill in the art. *St Regis Paper Co. v. Bemis Co.*, 549 F2d 833, 193 USPQ 8(CA 71977).

Regarding claims 32-33, Iddan does not specify the use of spherical or plane mirrors, however it is well known in the optical art to use these types of mirrors for directing and magnifying radiation.

Regarding claim 34, the magnifying assembly (element 18) is moveable by the rotation about an axis. However, Iddan does not disclose the use of the operative or inoperative state. Although he does not specify that the magnifying assembly has 2 states, an operative and inoperative state, it would have been obvious to one having ordinary skill in the art at the time the invention was made to define an in use state and a nonuse state, as it is only a matter of convention.

Regarding claims 35-36, Iddan discloses a mirror (element 44) that has two operative positions, one that allows the CCD camera to detect an image, and another that allows for magnification and detection of IR radiation. Iddan does not specify that the magnification assembly is the element that causes a position in which the radiation can propagate to the detector without magnification. However, since the operative positions of the mirror function similarly as the claimed magnification element, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the mirror element that rotates about 45 degrees about an axis.

Regarding claims 37 and 38, Iddan discloses a cold shield (element 36) that is responsible for reducing spurious IR radiation impinging on the detector (see column 3, lines 63-67).

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Although he does not specify that the shield has 2 states, an operative an inoperative state, it would have been obvious to one having ordinary skill in the art at the time the invention was made to define an in use state and a nonuse state, as it is only a matter of convention.

Regarding claim 39, Iddan further discloses optical elements (element 26) where a beam of rays to be detected passes and the desired radiation is focused onto the detector. Although Iddan does not specify the use of a plane mirror, it is well known in the art to use various types of mirrors and lenses to direct and focus desired radiation onto a detector.

9. Claims 14-19 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iddan (US Patent 5,512,749).

Regarding claims 14 and 27, Iddan discloses a detector array (Figure 2) for use in an IR microscope, said detector array comprising a plurality of individual detector elements (element 48) each corresponding to a pixel. Further, each detector elements corresponds to a pixel and thus is in a 1:1 relationship, meaning that the center to center spacing of adjacent detector elements is equal to the pixel pitch (see figure 2).

Regarding claim 15, Iddan discloses that the detector elements are arranged in a linear array (Figure 2 and 4).

Regarding claims 16, 17, 18 Iddan discloses that the detector elements are arranged linearly, spaced apart, and in a plurality of rows (see Figures 2 and 4).

Regarding claim 19, Iddan discloses that the detector elements are staggered apart relative to those in an adjacent row (see figure 4 and column 4, lines 60-66).

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10. Claims 8-13, and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dukor (US Patent 6,274,871) in view of Iddan (US Patent 5,512,749) further in view of Dumas (US Patent 5,712,685).

The limitations set forth in the corresponding independent claims have been described in the abovementioned paragraphs.

Regarding claims 8-12 and 20-24 Dukor in view of Iddan does not specifically disclose that the detector elements are located at a position corresponding to a point on a grid. However, Dumas discloses a device to enhance detector resolution, including the use of a grid wherein detector elements are positioned corresponding to points on the grid (figure 3, Column 6, lines 5-19) and can be fashioned in various of grid/detector element configurations. Further Dumas discloses that the grid pattern is rectangular (figure 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the specific detector device as disclose by Dumas with the invention disclosed by Dukor in view of Iddan, in order to enhance image resolution.

Regarding claim 13, Iddan discloses a processor (element 50) that processes output signals received from the detector array.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. US Pre Grant Publication 2003/0071216- this reference discloses many of the claimed elements but cannot be applied because of the filing date.
- b. US Patent 5,880,470- this reference discloses specific detector configurations.



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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Sung whose telephone number is 703-305-0382. The examiner can normally be reached on Monday- Friday 7-4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 703-308-4852. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Christine Sung  
Examiner  
Art Unit 2878

CS



**DAVID PORTA**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**

Attachment for PTO-948 (Rev. 03/01, or earlier)  
6/18/01

The below text replaces the pre-printed text under the heading, "Information on How to Effect Drawing Changes," on the back of the PTO-948 (Rev. 03/01, or earlier) form.

**INFORMATION ON HOW TO EFFECT DRAWING CHANGES**

**1. Correction of Informalities -- 37 CFR 1.85**

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the Notice of Allowability. Extensions of time may **NOT** be obtained under the provisions of 37 CFR 1.136(a) or (b) for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

**2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.**

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

**Timing of Corrections**

Applicant is required to submit the drawing corrections within the time period set in the attached Office communication. See 37 CFR 1.85(a).

Failure to take corrective action within the set period will result in **ABANDONMENT** of the application.